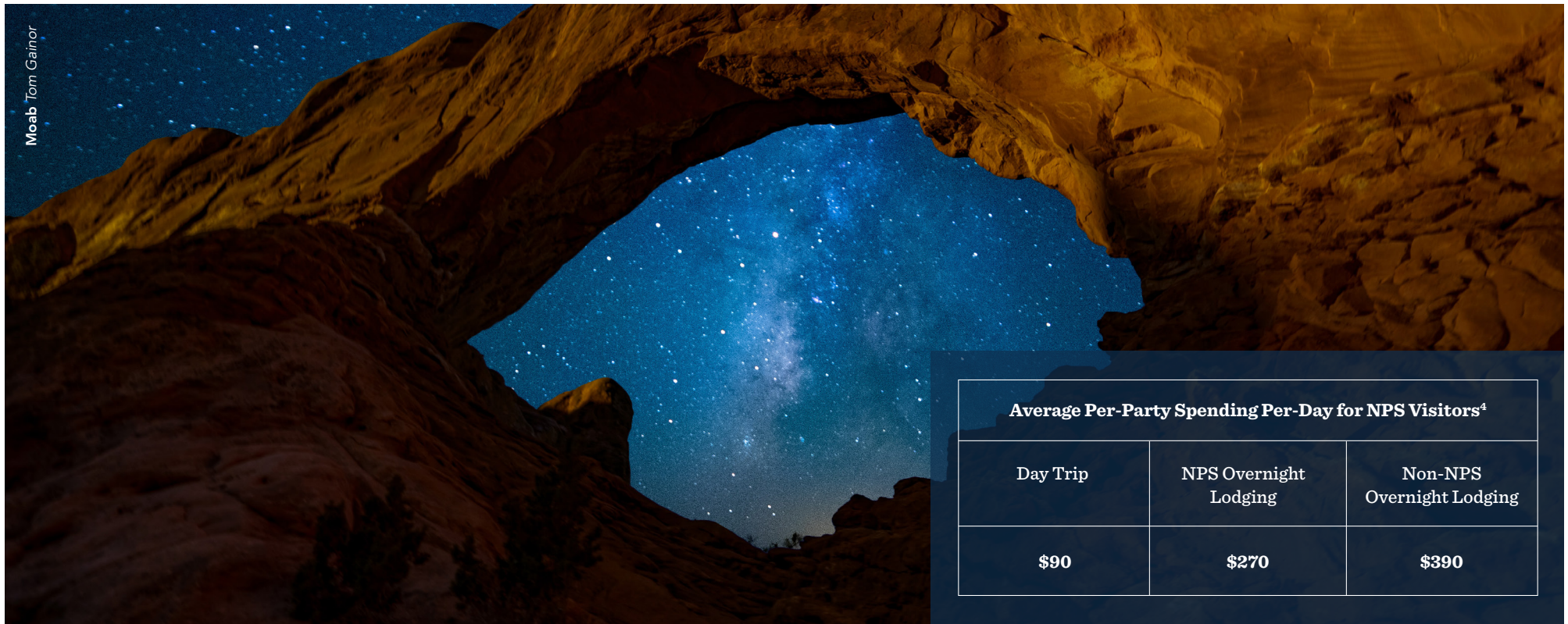

An industry guide to:
Astrotourism

LIFE
UTAH
ELEVATED



Average Per-Party Spending Per-Day for NPS Visitors⁴

Day Trip	NPS Overnight Lodging	Non-NPS Overnight Lodging
\$90	\$270	\$390

What is astrotourism?

Astrotourism is a low-impact, sustainable form of tourism focused on the viewing of celestial objects and events. With nearly 80 percent of North Americans unable to see the Milky Way at night from their homes, places where the night sky is preserved offer visitors a truly unique, memorable, and moving experience.¹

Utah is the dark skies capital of the world with 23 accredited dark sky places, including 10 national parks and monuments, 10 state parks, and three local towns and parks.² In 2016, over 5.5 million people visited an International Dark Sky National Park in Utah, with an estimated 621,875 visitors staying overnight in the parks and 61,500 participating

in astronomy-related activities.³ With its dry, semi-arid climate, vast wilderness, and more than 250 cloudless days, Utah is an ideal destination for star-gazing travelers looking for clear skies and natural darkness.

Astrotourism is a product type that can disperse visitors around a destination and encourage them to visit during the off-peak season. In fact, night sky viewing is often better in winter due to longer, clearer nights. Astrotourism is also potentially a lucrative tourism product as it typically requires visitors to stay overnight. Visitors who stay overnight are likely to spend more than 3 times as much as day visitors.

According to one recent analysis, astrotourism could lead to \$5.8 billion in visitor spending over the next 10 years and support over 11,000 new jobs per year in the Four Corners region.⁵ As one of the few states in the path of totality for the 2017 solar eclipse, communities across Wyoming experienced the power of astrotourism. That rare event—which lasted for approximately five minutes—generated \$63.5 million from 261,100 visitors over the course of five days.⁶

Astrotourism preserves rural character, connects visitors to nature, and can help both tourists and locals identify with Utah's heritage. The unspoiled night sky enjoyed by Utah's

native peoples, Mormon pioneers, ranchers, farmers, and outdoorsmen can be preserved and enjoyed through astrotourism.

¹ <https://www.darksky.org/80-of-world-population-lives-under-skyglow-new-study-finds/>

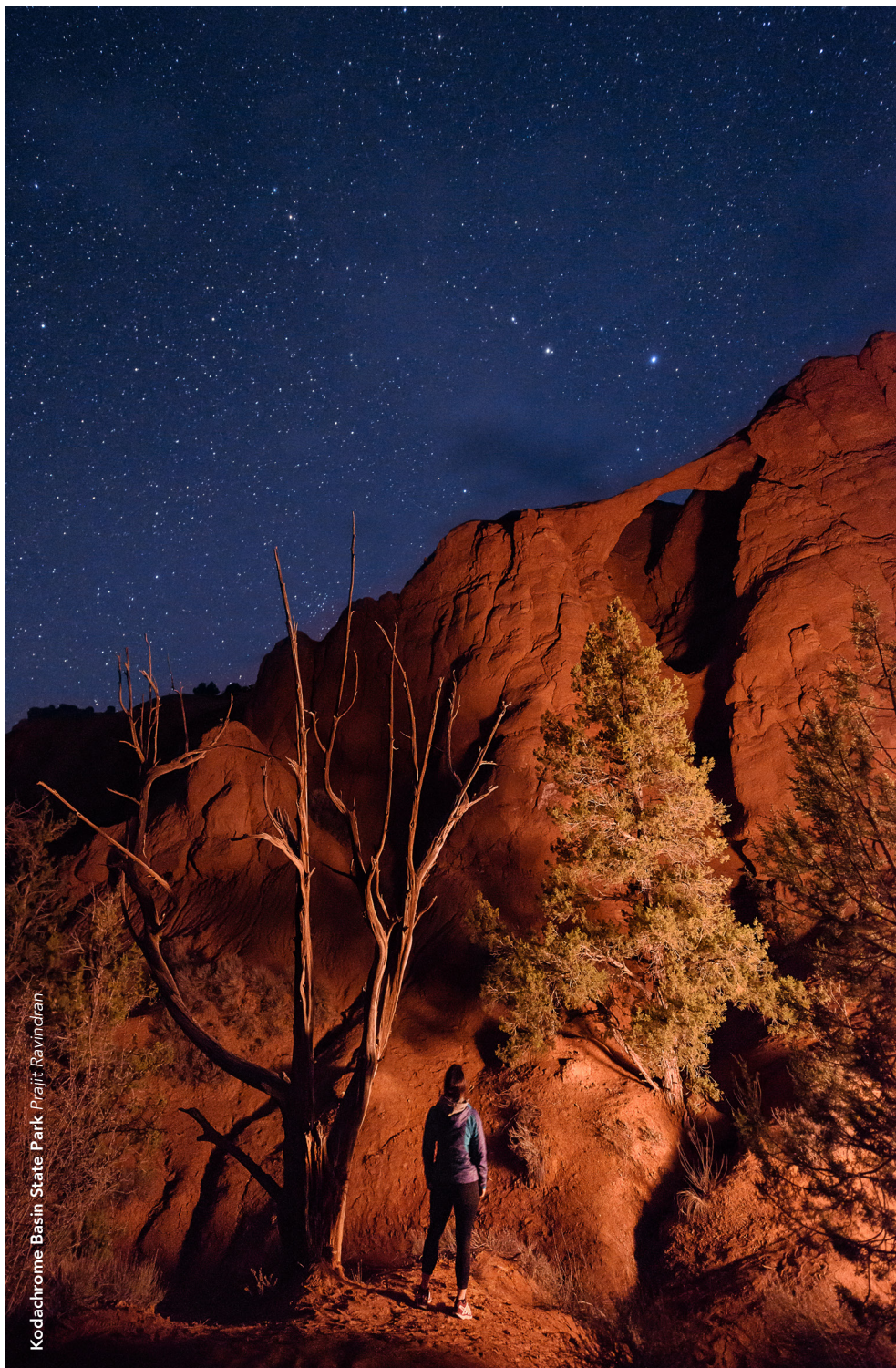
² Numbers accurate as of April 2021. See Darksky.org for a full list of designated Dark Sky Places.

³ A study by Bryce Canyon National Park estimates that 9.91% of its visitors participate in astrotourism activities. When applied to the 2016 NPS visitor totals, this suggests a total of 61,500 visitors statewide. See Collinson, Frederick M. and Kevin Poe (2013), "Astronomical Tourism": The Astronomy and NDark Sky Program at Bryce Canyon National Park," Tourism Management Perspectives, Vol. 7, pp. 1-15. <https://www.sciencedirect.com/science/article/abs/pii/S2211973613000056?via=ihub>

⁴ Cullinane Thomas, C., and L. Koontz (2017), "2016 national park visitor spending effects: Economic contributions to local communities, states, and the nation," Natural Resource Report NPS/NRSS/EQD/NRR—2017/1421. National Park Service. https://www.nps.gov/nature/customd/NPS_Data_Visualization/docs/2016_VSE.pdf

⁵ Mitchell, D. and Galloway, T. (2019), "Dark sky tourism: economic impacts on the Colorado Plateau Economy, USA", Tourism Review, Vol. 74 No. 4, pp. 930-942. <https://doi.org/10.1108/TR-10-2018-0146>

⁶ Dean Runyan Associates and Destination Analysts, Inc. "2017 Eclipse Economic Impact Study Summary of Findings," prepared for the Wyoming Office of Tourism. <https://buckrail.com/wp-content/uploads/2017/12/Wyoming-Office-of-Tourism-2017-Eclipse-Economic-Impact-Study.pdf>



KEY TERMS

Astrotourism: Tourism related activities that involve or relate to the viewing of celestial objects and events

Dark Sky: A place where the natural darkness of the night sky is relatively free of interference from artificial light

Light Pollution: A term used to describe the inappropriate or excessive use of artificial light. Elements of light pollution include:

- Glare: excessive brightness that causes visual discomfort
- Skyglow: brightening of the night sky over inhabited areas
- Light trespass: light falling where it is not intended or needed
- Clutter: bright, confusing and excessive groupings of light sources

International Dark-Sky Association (IDA): The non-profit International Dark-Sky Association (IDA) advocates for the preservation and protection of the nighttime environment. IDA is the recognized authority on night sky protection.

PRODUCT TYPES & DEFINITIONS

Astronomy: Night sky viewing of celestial objects and events. Using personal or rented equipment, individuals, families, and groups can explore the skies on their own terms. Localities can improve the visitor experience by designating astronomy spots and providing interpretation; implementing dark sky friendly lighting ordinances to reduce sky-glow; adding astronomy components to other visitor experiences; educating visitors about celestial events and optimal viewing times.

Programmed Events: Community events that bring visitors and residents together to socialize, learn about outer space, and watch the skies. Programmed events can be great

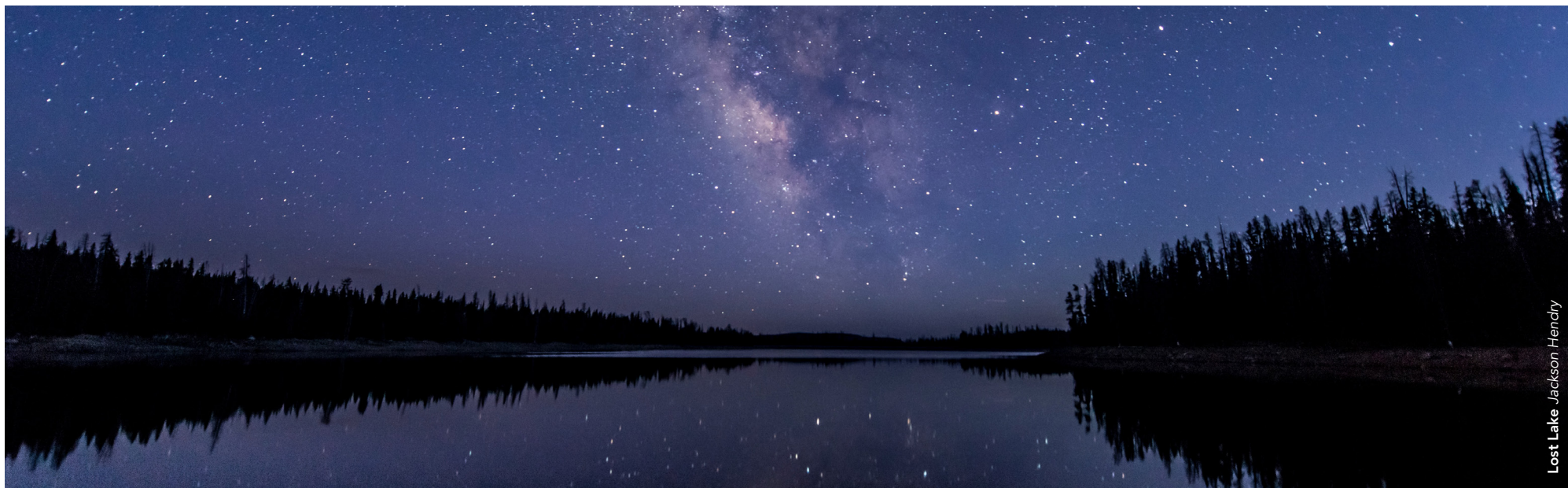
products for local parks and recreation departments, libraries, or community groups. They provide opportunities for volunteers to participate as "Astro ambassadors." Programmed events can frequently be held in cooperation with other jurisdictions, such as NPS, BLM, and State parks.

Storytelling: Dark skies provide a fitting setting to campfire yarns. From ghost stories to cowboy poetry to local history and legends, storytelling under the stars can be a unique and enriching value-added experience to campgrounds, resorts, and cultural sites that promote overnight stays.

Guided Tours: Dark skies embody the Western outdoor experience. Guides and outfitters with dark sky knowledge add a unique and enriching value-added element to their product. They might consider activities like special guided night hikes or share dark sky best practices with guests.

Night Sky Photography: Preserved dark skies provide opportunities for evocative and dramatic photographs. From simple DSLR cameras and tripods to tracking software and telescopes, night sky photography is accessible to a wide range of hobbyists and professionals.

Trail Lighting: Trails can extend their hours of operation and become a more dynamic asset by adding dark sky compliant lighting. Lighting improves visibility, increases access and convenience, creates a sense of security, and provides a new experience to users than what they may have in daylight.



OPERATIONS

Dark Sky Designations

The IDA's International Dark Sky Places conservation program recognizes and promotes excellent stewardship of the night sky in communities, parks, and protected areas around the world. There are currently six types of designations offered by the program. Click [here](#) to find more information about the types of designations and distinctions.

Local Government Ordinances

IDA compliant outdoor lighting ordinances regulate the type of lighting installations that may be used in order to direct light and prevent spillover, frequently known as light pollution or skyglow. Outdoor lighting ordinances preserve the clarity and novelty of dark skies. These ordinances can help protect and preserve the night sky product and provide guidance to local attractions interested in making astrotourism a part of their experience.

More information on municipal lighting ordinances from the International Dark-Sky Association can be [found here](#).

RESOURCES

Funding Sources

There are few, if any, resources that exclusively fund dark sky activities. Because dark sky compliant lighting practices frequently lead to electricity cost saving savings, many electric utilities offer rebates, discounts, or other types of assistance. Check with your local utility to see what resources may be available.

Partner Organizations

In addition to local counties, municipalities, state governments and non-profits, the following is a list of top partners:

- **Dark Sky Planning Guidance & Best Practices:** An introduction to dark sky planning for local communities.
- **Dark Sky Assessment Guide:** A simple self-assessment on a community's dark sky practices, along with instruction for improvement.
- **Utah Community Development Office:** The State of Utah Community Development Office can provide training, tools, and technical assistance.

- **International Dark-Sky Association (IDA):** The recognized authority on light pollution and coordinating program of the International Dark Sky Places Program. IDA establishes dark sky guidelines, provides consultation, offers tools and resources, and certifies Dark Sky places.
- **The Colorado Plateau Dark Sky Cooperative:** A non-profit group that can assist with outreach, education, and dark sky events.
- **The Consortium for Dark Sky Studies:** The Consortium is dedicated to the discovery, development, communication, and application of dark sky knowledge across a wide range of disciplines and professional fields.
- **Timpanogos Storytelling Institute:** A non-profit organization dedicated to sharing and expanding the art of storytelling. The Institute hosts training, a marketplace for professional storytellers, and an annual festival.



Supporting Amenities

NATURAL ASSETS

Unspoiled Night Sky

Astrotourism requires an undisturbed night sky, this means sky that is not polluted by excessive light from outdoor lighting fixtures or urban areas. The International Dark-Sky Association offers more information on how to [measure light pollution](#) and eligibility requirements on designation to its [International Dark Sky places Program](#).

HUMAN CAPITAL & SKILLS

Maps & Guides

Direct visitors to prime sky-viewing locations, particularly those that are specially designated as such.

Astronomy Equipment

Observatories, permanent and portable telescopes and telescope accessories such as filters, pointers, and eyepieces, enhance the astrotourism experience. Portable telescopes can be available for rent or purchase from outdoor retailers, traditional retailers, libraries, or other government entities.

PHYSICAL INFRASTRUCTURE

Accommodation

Astrotourism is most profitable if a destination possesses some type of overnight lodging, such as hotels, overnight rentals, or campgrounds so that guests have the option to stay longer in the destination and spend more.

Also, those accommodations whether lodging or campgrounds should implement dark sky

friendly directional lighting, as well as spaces for viewing the night sky.

IDA Compliant Lighting

There are lighting practices and implements that preserve the night sky visibility while still lighting the area. Lighting should:

- Only be on when needed using timers or motion sensors.
- Only light the area that needs it.
- Be no brighter than necessary.
- Minimize blue light emissions by using bulbs in the appropriate color spectrum.
- Be fully shielded.

Learn more about IDA compliant lighting [here](#).

OTHER CONSIDERATIONS

Festivals

Special celestial events, such as comets, eclipses, planetary transits, and equinoxes can be causes for larger events such as festivals. This is especially useful in drawing in visitors during the “offseason.” These events could also be targeted towards school groups for educational purposes.

Storytelling/Interpretation

Destinations and their amenities can educate and entertain their visitors by providing information about dark sky lighting practices, astronomy, and local night-sky related stories and legends.



Delicate Arch Ken Cheung

Sustainable Tourism

WHAT IS SUSTAINABLE TOURISM?

Sustainable tourism development manages the impacts of tourism on the destination's environment, economy and community in order to maintain and enhance the destination's resources for the present and future needs of both tourists and the communities that host them.

Astrotourism is considered a sustainable form of tourism because of its minimal impact on the environment, its ability to disperse visitation seasonally and geographically, and the connection that visitors make with the local community. This type of tourism is a great option for rural communities because it does not require the implementation of extensive physical infrastructure and many rural communities are already uniquely positioned to offer astrotourism because their locations are typically less affected by light pollution compared to urban areas.

CERTIFICATION & STANDARDS

- The IDA's International Dark Sky Places conservation program recognizes and promotes excellent stewardship of the night sky in communities, parks, and protected areas around the world.
- Global Sustainable Tourism Council's Criteria for Destinations and suggested performance indicators are the globally recognized standard for sustainable tourism, which serve as a basic guideline for destinations that want to become more sustainable.

- TrainingAid provides international training to travel and tourism professionals specifically focused on sustainable tourism. Their key training areas include destination marketing and management, business development, and other effective skills and tools in order to sustainably grow the tourism sector.

SUSTAINABLE PRACTICES BY PILLAR

Sustainable tourism development manages the impacts of tourism on the destination's environment, economy and community in order to maintain and enhance the destination's resources for the present and future needs of both tourists and the communities that host them.

Tourism Management

- Astrotourism can help manage tourism seasonality by offering astrotourism events in the off-seasons. Utah, in particular, has greater potential to offer year-round stargazing because its dry climate allows for more clear night skies throughout the year compared to other dark sky areas.
- Astrotourism is an accessible form of tourism for many demographics because it does not require additional hard infrastructure or mechanisms in order to increase accessibility.

Environmental

- Opportunity to conserve energy by implementing lighting that is energy-efficient, effective and not superfluous.

The International Dark-Sky Association provides guidelines on effective lighting fixtures and where to find dark sky lighting.

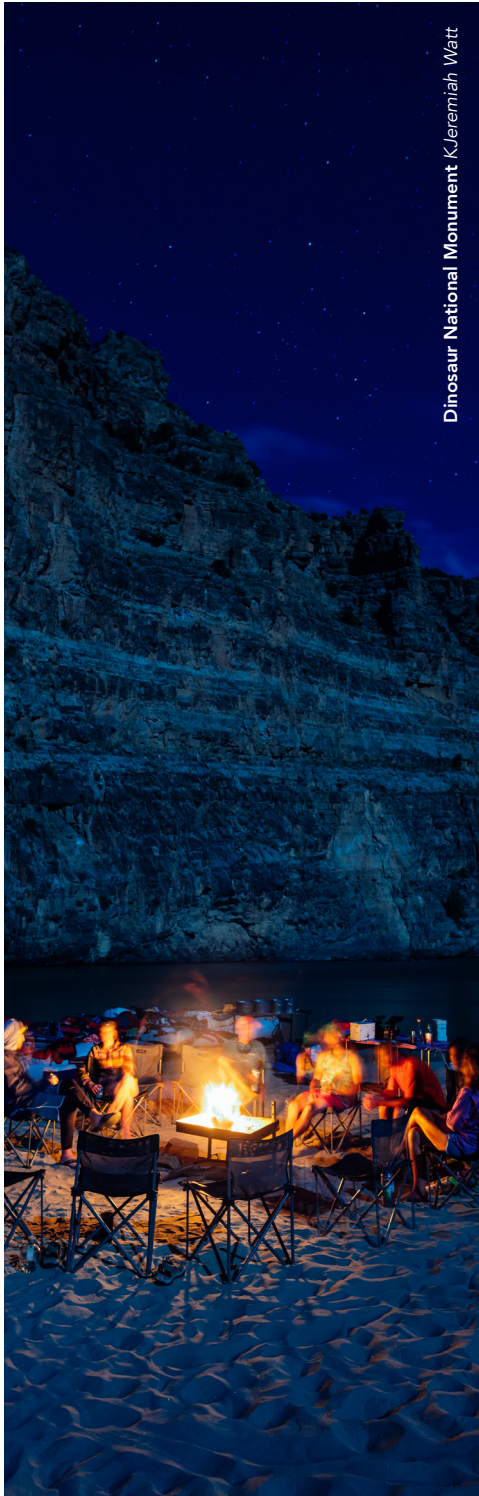
- Increased protection to wildlife and sensitive natural areas by reducing harmful light pollution. The International Dark-Sky Association provides more information on the harmful effects of light pollution and its specific impacts on wildlife and ecosystems.

Social-Cultural

- The opportunity to increase education and awareness of the negative impact of excessive lighting as well as the economic benefits of astrotourism to regional stakeholders. The IDA provides free educational materials to help a destination spread awareness.

Economic

- Astrotourism has the potential to increase tourism spending by increasing the number of overnight stays in destination by offering dark sky tourism activities.
- Increased tourism opportunities may result in local job creation.
- IDA compliant lighting may lead to lower energy costs due to efficient usage.



Successful Case Studies

Torrey: This quaint tourist town known best as the gateway community to Capitol Reef National Park (an IDA International Dark Sky Park) came together to protect its night skies by adopting quality outdoor lighting ordinances and launching efforts to educate residents about the importance of dark skies. The efforts paid off as Torrey was Utah's first IDA International Dark Sky Community. That means you can stay anywhere in town and get a beautiful night sky view without having to trek deep into the wilderness.

Antelope Island State Park: View the beautiful dark skies from the west side of Antelope Island (opposite the urban-core lights) and it's easy to forget you're just an hour-and-a-half drive from Salt Lake City. Overlooking the Great Salt Lake at night with countless stars above makes for near-seamless stargazing. The park presents dark sky programs and events to learn more about the Milky Way and beyond.

Bryce Canyon National Park: One of Utah's oldest dark sky and stargazing programs with ranger-led astronomy tours and moonlit hikes, Bryce Canyon became an accredited dark-sky park in 2019. Bryce Canyon also has an annual Astronomy Festival.

Cedar Breaks National Monument: Far from any metro light pollution and high in altitude makes sleeping under the stars at Cedar Breaks National Monument's updated campground first class. Rangers hold stargazing programs throughout the summer months. The Cedar City Library allows patrons to check out a telescope for high-quality viewing of the Milky Way.

Dead Horse Point State Park: Dead Horse Point was the first Utah State Park to achieve IDA certification. Except in winter, the park

offers multiple evening events each month, such as night hikes, telescope programs, and constellation tours. Even in poor weather conditions, multimedia astronomy talks can be held inside the visitor center.

Goblin Valley State Park: The park is unlike any other place in the world — and a place that captures and stretches the imagination, challenging you with its geologic whimsy. Free of any significant sources of light pollution, Goblin Valley is home to one of the clearest, darkest night skies in the world. Open daily until 10:00 p.m. and home to 24 campsites and two yurts for overnight guests. Park rangers hold regular dark sky events such as moonlit hikes and telescope tours.

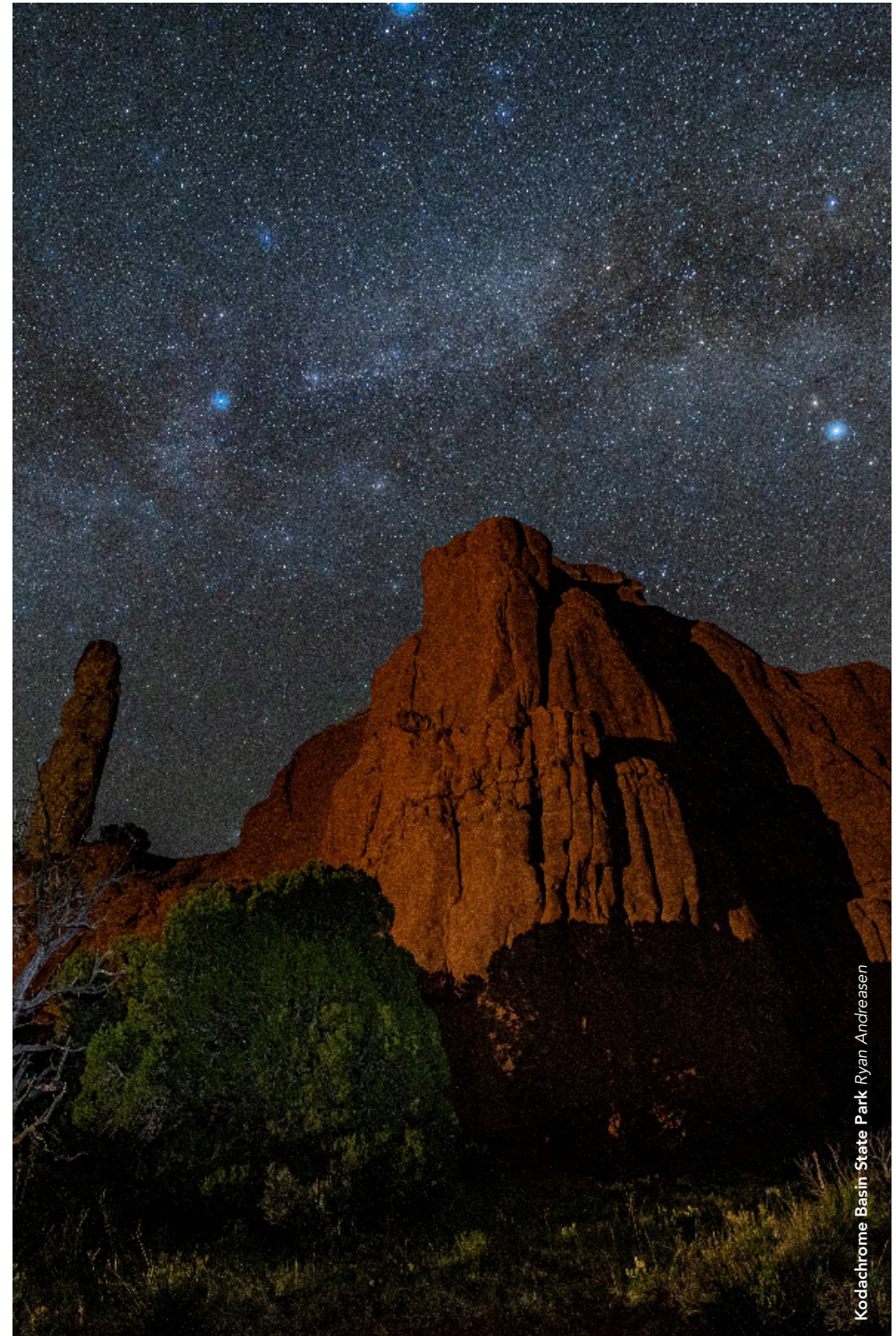
Weber County North Fork Park of Ogden Valley: This sprawling county park tucked into a canyon near Ogden is one of the few places you can still see the Milky Way near an urban center — in part because the mountains block light pollution from the Wasatch Front and Cache Valley and because of successful local efforts to limit light pollution in the park.

Rainbow Bridge National Monument: The first International Dark Sky Sanctuary in the National Park Service. The monument itself can only be accessed only by boat on Lake Powell or by backpacking from Navajo Mountain, but the entire Glen Canyon National Recreation Area boasts dark skies.

Contact

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Kodachrome Basin State Park Ryan Andreasen



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